



Solving the winner determination problem via a weighted maximum clique heuristic

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Résumé en anglais	<p>Combinatorial auctions (CAs) where bidders can bid on combinations of items is an important model in many application areas. CAs attract more and more attention in recent years due to its relevance to fast growing electronic business applications. In this paper, we study the winner determination problem (WDP) in CAs which is known to be NP-hard and thus computationally difficult in the general case. We develop a solution approach for the WDP by recasting the WDP into the maximum weight clique problem (MWCP) and solving the transformed problem with a recent heuristic dedicated to the MWCP. The computational experiments on a large range of 530 benchmark instances show that the clique-based approach for the WDP not only outperforms the current best performing WDP heuristics in the literature both in terms of solution quality and computation efficiency, but also competes very favorably with the powerful CPLEX solver.</p>
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